



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/671,218

09/25/2003

Chan-Yul Kim

5000-1-449

8233

33942

7590

05/15/2008

CHA & REITER, LLC

210 ROUTE 4 EAST STE 103

PARAMUS, NJ 07652

EXAMINER

BELLO, AGUSTIN

ART UNIT

PAPER NUMBER

2613

MAIL DATE

DELIVERY MODE

05/15/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/671,218 | Applicant(s) KIM ET AL. | |
| | Examiner Agustin Bello | Art Unit 2613 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 7, 10 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Blahut (U.S. Patent No. 6,778,550).

Regarding claims 1 and 10, Blahut teaches an optical transceiver (reference numeral 106 in Figure 1) configured to receive an optical TDM (Time Division Multiplex) broadcasting-telecommunications converged signal (i.e. broadcasting and telecommunication transmitted together) from an Optical Network Unit (reference numeral 104 in Figure 1 acting as a unit in an optical network), to convert the optical broadcasting-telecommunications signal to an electrical broadcasting-telecommunications signal (reference numeral 504 in Figure 5), and to convert an uplink electrical signal received from a subscriber to an optical signal (reference numeral 517 in Figure 5); a broadcasting/telecommunications signal distributor (reference numeral 505 and its associated branching element at its output in Figure 5) configured to receive the electrical broadcasting/telecommunications signal, configured to separate the received, electrical broadcasting-telecommunications signal into a separate broadcasting signal (reference numeral 511 in Figure 5), and a separate telecommunications signal (reference numeral 512 in Figure 5),

and configured to output the separated broadcasting signal and the separated telecommunications signal to separate destinations; a broadcasting interface (reference numeral 111 in Figure 1) configured to interface with the broadcasting signal received from the broadcasting/telecommunications signal distributor; and a telecommunications interface (reference numeral 107 in Figure 1) configured to interface with the telecommunications signal received from the broadcasting/telecommunications signal distributor, and providing the uplink signal to the optical transceiver (reference numerals 515, 517 in Figure 5), wherein the subscriber optic distributor (reference numeral 106 in Figure 1) is configured to be arranged at a user's location to receive at the user the optical TDM (Time Division Multiplex) broadcasting telecommunications signal via an optical fiber (reference numeral 105-1 in Figure 1) from the Optical Network Unit (reference numeral 104 in Figure 1) of the optical transmission network in an Fiber To The Home arrangement.

With respect to claims 7 and 16, Blahut discloses the subscriber optical distributor of claim I, wherein the broadcasting/telecommunications signal distributor receives the broadcasting-telecommunications signal from the optical transceiver, extracts time frame data and a clock signal of TDM (column 11 lines 40-50 (circuit 505 detects downstream broadcasting/telecommunications signal and recovers clock from a clock and data recovery circuit)) from the received broadcasting-telecommunications signal (column 6 lines 53-59 (timing for upstream frames is derived from downstream data)), and separating the time frame data into broadcasting data and Ethernet packet data (column 11 lines 50-62 (circuit 505 then determines which received cells are being broadcast and which are directed to that particular ONU. Ethernet interface 507 and broadcast interface 508 then accept the data that belongs to

them))(column 13 lines 45-49 (ATM cells or IP packets can be used as the type of data formatting used in this invention)).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blahut in view of Sala (U.S. Patent No. 7,127,167).

With respect to claims 2 and 11, Blahut discloses the subscriber optical distributor of claim 1, however, Blahut does not specifically disclose a broadcasting controller for selecting specific channels. Despite this, broadcasting controllers are notoriously well known in the art and is cannot be considered a patentable limitation. Sala, from the same field of endeavor similarly discloses a fiber to the home optical transmission system using time division multiplexing (title) wherein a broadcasting controller is used (column 13 lines 26-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to implement the broadcasting controller as disclosed by Sala into the FTTH transmission system as disclosed by Blahut. The motivation for doing so would have been the obvious desire for the ability to readily control what information is accessed (Sala: column 13 lines 26-29).

5. Claims 3, 5, 9, 12, 14, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blahut in view of Thomas (U.S. Patent Application Publication No. 2003/0016692).

With respect to claim 3 and 12, Blahut discloses the subscriber optical distributor of claim 1, however fails to disclose said distributor is implemented as VCSEL (Vertical Cavity Surface Emitting Laser) transceiver. Thomas, from the same field of endeavor discloses a F'T'FH optical transmission system (page 1 paragraph 3) wherein each transceiver node (120, figure 3 (transceiver node)) is implemented as a VCSEI, (Vertical Cavity Surface Emitting Laser) transceiver (page 7 paragraph 73). Therefore, it would have been obvious to one of ordinary skill in the art to implement a VCSEL transceiver into the FTTH system as taught by Blahut. This is because Thomas teaches that such a selection is a mere design choice with multiple other functionally equivalent alternatives such as FP lasers and DFB lasers (page 7 paragraph 73).

With respect to claims 9 and 18, Blahut in view of Thomas disclose the subscriber optical distributor of claim 3, wherein the broadcasting/telecommunications signal distributor receives the broadcasting-telecommunications signal from the optical transceiver, extracts time frame data and a clock signal of TDM from the received broadcasting-telecommunications signal using an internal PLL, (Phase Locked Loop) (Blahut: column 11 lines 40-50 (circuit 505 detects downstream broadcasting/ telecommunications signal and recovers clock from a clock and data recovery circuit, CDR circuits inherently include a PLL mechanism)) and separating the time frame data into broadcasting data and Ethernet packet data (Blahut: column 11 lines 50-62 (circuit 505 then determines which received cells are being broadcast and which are directed to that particular ONU. Ethernet interface 507 and broadcast interface 508 then accept the data that belongs to them))(column 13 lines 45-49 (Blahut: ATM cells or IP packets can be used as the type of data formatting used in this invention)).

With respect to claims 5 and 14, Blahut in view of Thomas discloses the subscriber optical distributor of claim 3, wherein the VCSEL, transceiver (Thomas: page 7 paragraph 73 (VCSEL) comprises: an analog broadcasting receiver (Blahut: column 11 lines 57-67 (broadcast signal is sent to an analog television set)) a broadcasting- telecommunications signal receiver having PIN-PD) (504, figure 5), for receiving the TDM broadcasting- telecommunications signal (column 1 lines 59-65 (data in both directions includes video, data and digitized voice)); and a transmitter (Blahut: 517, figure 5 (laser)) for an Ethernet uplink (Blahut: column 12 lines 26-40 (output from Ethernet interface is sent upstream)). Despite the fact that Blahut in view of Thomas do not specifically disclose one photo diode for each interface shown, the setup taught by Blahut in view of Thomas with one photo-diode for two interfaces is functionally equivalent in that both interfaces still receive individual electrical signals from a single optical signal. They are merely separated at different points. Furthermore both low noise and trans-impedance amplifiers are notoriously well known in the art as an advantageous element in combination with electro-optic receiver systems. Therefore it would have been obvious to one of ordinary skill in the art to implement either of said amplifiers to the reception system of Blahut in view of Thomas. The motivation for doing so would have been to reduce the amount of received signal noise.

6. Claims 4, 6, 8, 13, 15, and 17, are rejected under 35 U.S.C. 103(a) as being unpatentable over Blahut in view of Sala, and further in view of Thomas.

With respect to claims 4 and 13, Blahut in view of Sala discloses the subscriber optical distributor of claim 2, however, Blahut in view of Sala fail to disclose said distributor is implemented as VCSEL (Vertical Cavity Surface Emitting Laser) transceiver, Thomas, from the

same field of endeavor discloses a FTTH optical transmission system (page 1 paragraph 3) wherein each transceiver node (120, figure 3 (transceiver node)) is implemented as a VCSEL (Vertical Cavity Surface Emitting Laser) transceiver (page 7 paragraph 73). Therefore, it would have been obvious to one of ordinary skill in the art to implement a VCSEL transceiver into the FTTH system as taught by Blahut. This is because Thomas teaches that such a selection is a mere design choice with multiple other functionally equivalent alternatives such as FP lasers and DFB lasers (page 7 paragraph 73).

With respect to claims 6 and 15, Blahut in view of Sala and further in view of Thomas discloses the subscriber optical distributor of claim 3, wherein the VCSEL transceiver (Thomas: page 7 paragraph 73 (VCSEL) comprises: an analog broadcasting receiver (Blahut: column 11 lines 57-67 (broadcast signal is sent to an analog television set)) a broadcasting-telecommunications signal receiver having PIN-PD (504, figure 5), for receiving the TDM broadcasting-telecommunications signal (column 1 lines 59-65 (data in both directions includes video, data and digitized voice)); and a transmitter (Blahut: 517, figure 5 (laser)) for an Ethernet uplink (Blahut: column 12 lines 26-40 (output from Ethernet interface is sent upstream)), despite the fact that Blahut in view of Thomas do not specifically disclose one photo diode for each interface shown, the setup taught by Blahut in view of Thomas with one photo-diode for two interfaces is functionally equivalent in that both interfaces still receive individual electrical signals from a single optical signal. They are merely separated at different points, Furthermore both low noise and trans-impedance amplifiers are notoriously well known in the art as an advantageous element in combination with electro-optic receiver systems. Therefore it would have been obvious to one of ordinary skill in the art to implement either of said amplifiers to the

reception system of Blahut in view of Thomas. The motivation for doing so would have been to reduce the amount of received signal noise.

With respect to claims 8 and 17, Blahut in view of Sala discloses the subscriber optical distributor of claim 1, wherein the broadcasting/telecommunications signal distributor receives the broadcasting-telecommunications signal from the optical transceiver, extracts time frame data and a clock signal of TDM (Blahut: column 11 lines 40-50 (circuit 505 detects downstream broadcasting/telecommunications signal and recovers clock from a clock and data recovery circuit)) from the received broadcasting- telecommunications signal (Blahut: column 6 lines 53-59 (timing for upstream frames is derived from downstream data)), and separating the time frame data into broadcasting data and Ethernet packet data (Blahut: column 11 lines 50-62 (circuit 505 then determines which received cells are being broadcast and which are directed to that particular ONU. Ethernet interface 507 and broadcast interface 508 then accept the data that belongs to them))(column 13 lines 45-49 (Blahut: ATM cells or IP packets can be used as the type of data formatting used in this invention)).

Response to Arguments

7. Applicant's arguments filed 02/28/08 have been fully considered but they are not persuasive. The applicant argues that the optical transceiver taught by Blahut is not the same as applicant's subscriber optical distributor since Blahut's transceiver converts an optical signal to an electrical signal. However, the examiner notes that this conversion does not preclude Blahut from anticipating the claimed invention since the claim language does not recite that the transceiver does not perform this function.

As to applicant's clarifying amendment that the ONU provides a converged optical signal that is converted by the subscriber optical distributor, the examiner notes that Blahut clearly provides a unit 104 in Figure 1 that is part of the optical network, thus an optical network unit, and further provides that this ONU sends a signal that is a mixture of broadcast and telecommunications information, therefore providing a "converged optical signal."

While it is true that Blahut converts this received optical signal into an electrical signal, nothing in the claim language precludes this action nor distinguishes the claimed invention from the prior art. Furthermore, Blahut clearly shows in Figure 5 that the received optical signal, once converted, is first distributed as a converged signal, i.e. at the output of 505, and is then separated into respective service signals, i.e. distribution to elements 507-509. As such, Blahut continues to anticipate the claimed invention.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Agustin Bello/
Primary Examiner, Art Unit 2613